Remarks

In view of the following discussion, the applicants submit that the claims now pending in the application are not obvious under the provisions of 35 U. S. C. § 103. Thus, the applicants believe that all of these claims are in allowable form.

REJECTIONS

A. 35 U. S. C. § 103

1. Claims 1-9 are not obvious over Crossland et al. in view of Moskovich in further view of Travis

Claims 1-9 stand rejected under 35 U. S. C. § 103(a) as being unpatentable over Crossland et al. (U. S. Patent 6,654,156 issued on November 25, 2003) in view of Moskovich (U. S. Patent 5,625,495 issued on April 29, 1997) in further view of Travis (U. S. Patent 7,101,048 issued on September 5, 2006). The applicants submit that these claims are not rendered obvious by the combination of these references.

Claim 1 is directed to a lens system for use in a projection system (*see*, specification at page 1, lines 10-12). The lens system 80 relays light output from a first imager 50 on a pixel-by pixel basis onto a second imager 60 (*see*, FIG. 1 and the specification at page 3, lines 21-25). The lens system 80 includes a double gauss lens set 81, 82, 84, 85 with a distortion of less than about 0.015% with at least about 90% of the light energy of a specific pixel projected within a 15.4 micrometer square (*see*, FIG. 1 and the specification at page 3, lines 23-25).

Crossland et al. discloses an image display system (*see*, Crossland et al. at column 1, lines 5-7). The image display system includes an electrically

addressed spatial light modulator (EASLM) 1 and an optically addressed spatial light modulator (OASLM) 5 (*see*, Crossland et al. at FIG. 1 and column 1, lines 43-53). Images produced by the EASLM 1 is written on different parts of the OASLM 5 (*see*, Crossland at column 2, lines 21-34). An image transfer means 3 steers the image to the desired part of the OASLM 5 (*see*, Crossland et al. at FIG. 1 and column 2, lines 34-43).

Crossland et al. does not describe or suggest a lens system that relays light output from a first imager on a pixel-by pixel basis onto a second imager including a double gauss lens set with a distortion of less than about 0.015% with at least about 90% of the light energy of a specific pixel projected within a 15.4 micrometer square. Rather, Crossland et al. teaches away from applicant's projection system with a completely different arrangement in which images produced by an electrically addressed spatial light modulator are written on different parts of an optically addressed spatial light modulator using an image transfer means. Since Crossland et al. does not describe or suggest a lens system that relays light output from a first imager on a pixel-by pixel basis onto a second imager including a double gauss lens set with a distortion of less than about 0.015% with at least about 90% of the light energy of a specific pixel projected within a 15.4 micrometer square, claim 1 is patentable over Crossland et al.

Moskovich describes a telecentric lens system (*see*, Moskovich at column 1, lines 7-9). The telecentric lens system 13 projects light from module 16 onto a mirror 18 which then reflects such light onto a screen 14 (*see*, Moskovich at FIG. 16 and column 8, lines 7-28). The telecentric lens system 13 is designed to combine light generated in module 16 for projection onto a viewing screen (*see*, Moskovich at column 1, lines 20-32).

Moskovich does not describe or suggest a lens system that relays light output from a first imager on a pixel-by pixel basis onto a second imager including a double gauss lens set with a distortion of less than about 0.015% with at least about 90% of the light energy of a specific pixel projected within a 15.4

micrometer square. Rather, Moskovich only teaches telecentric lens system designed to combine light generated in a light module for projection onto a viewing screen. Since Moskovich does not describe or suggest a lens system that relays light output from a first imager on a pixel-by pixel basis onto a second imager including a double gauss lens set with a distortion of less than about 0.015% with at least about 90% of the light energy of a specific pixel projected within a 15.4 micrometer square, claim 1 is patentable over Moskovich.

Travis describes a compact projection display (*see*, Travis at column 1, lines 5-6). The projection display may include pixels with dimensions of 20-30 microns (*see*, Travis at column 7, lines 47-50).

Travis does not describe or suggest a lens system that relays light output from a first imager on a pixel-by pixel basis onto a second imager including a double gauss lens set with a distortion of less than about 0.015% with at least about 90% of the light energy of a specific pixel projected within a 15.4 micrometer square. Rather, Travis only teaches projection display including pixels with dimensions of 20-30 microns. Further, the pixel size of Travis does not teach that light is **projected within a 15.4 micrometer square**, as claim 1 requires. Since Travis does not describe or suggest a lens system that relays light output from a first imager on a pixel-by pixel basis onto a second imager including a double gauss lens set with a distortion of less than about 0.015% with at least about 90% of the light energy of a specific pixel projected within a 15.4 micrometer square, claim 1 is patentable over Travis.

Furthermore, since Crossland et al. only teaches an arrangement in which images produced by an electrically addressed spatial light modulator are written on different parts of an optically addressed spatial light modulator using an image transfer means, Moskovich only teaches telecentric lens system designed to combine light generated in a light module for projection onto a viewing screen and Travis only teaches projection display including pixels with dimensions of 20-30 microns, the combination of these references does not describe or suggest applicants arrangement recited in claim 1. In particular, claim 1 recites a lens

system that relays light output from a first imager on a pixel-by pixel basis onto a second imager including a double gauss lens set with a distortion of less than about 0.015% with at least about 90% of the light energy of a specific pixel projected within a 15.4 micrometer square. Thus, claim 1 is patentable over the combination of these references.

Claims 2-9 depend directly, or indirectly from claim 1. For the same reasons as indicated above for claim 1, claims 2-9 are also patentable over the combination of these references.

2. Claims 10 and 12-16 are not obvious over Crossland et al. in view of Moskovich

Claims 10 and 12-16 stand rejected under 35 U. S. C. § 103(a) as being unpatentable over Crossland et al. (U. S. Patent 6,654,156 issued on November 25, 2003) in view of Moskovich (U. S. Patent 5,625,495 issued on April 29, 1997). The applicants submit that these claims are not rendered obvious by the combination of these references.

Claim 10 is directed to a lens system for use in a projection system (*see*, specification at page 1, lines 10-12). The lens system 80 relays light output from a first imager 50 on a pixel-by pixel basis onto a second imager 60 (*see*, FIG. 1 and the specification at page 3, lines 21-25). The lens system 80 includes one pair of equivalent achromatic lenses 81, 85 and one pair of equivalent aspherical lenses 82, 84 positioned and configured to project the light output from a particular pixel on a first imager 50 onto a corresponding pixel on a second imager 60 (*see*, FIG. 1 and the specification at page 3, lines 23-25).

Crossland et al. discloses an image display system (*see*, Crossland et al. at column 1, lines 5-7). The image display system includes an electrically addressed spatial light modulator (EASLM) 1 and an optically addressed spatial light modulator (OASLM) 5 (*see*, Crossland et al. at FIG. 1 and column 1, lines 43-53). Images produced by the EASLM 1 is written on different parts of the

OASLM 5 (*see*, Crossland at column 2, lines 21-34). An image transfer means 3 steers the image to the desired part of the OASLM 5 (*see*, Crossland et al. at FIG. 1 and column 2, lines 34-43).

Crossland et al. does not describe or suggest a lens system that relays light output from a first imager on a pixel-by pixel basis onto a second imager including a pair of equivalent achromatic lenses and one pair of equivalent aspherical lenses positioned and configured to project the light output from a particular pixel on a first imager onto a corresponding pixel on a second imager. Rather, Crossland et al. teaches away from applicants projection system with a completely different arrangement in which images produced by an electrically addressed spatial light modulator are written on different parts of an optically addressed spatial light modulator using an image transfer means. Since Crossland et al. does not describe or suggest a lens system that relays light output from a first imager on a pixel-by pixel basis onto a second imager including a pair of equivalent achromatic lenses and one pair of equivalent aspherical lenses positioned and configured to project the light output from a particular pixel on a first imager onto a corresponding pixel on a second imager, claim 10 is patentable over Crossland et al.

Moskovich describes a telecentric lens system (*see*, Moskovich at column 1, lines 7-9). The telecentric lens system 13 projects light from module 16 onto a mirror 18 which then reflects such light onto a screen 14 (*see*, Moskovich at FIG. 16 and column 8, lines 7-28). The telecentric lens system 13 is designed to combine light generated in module 16 for projection onto a viewing screen (*see*, Moskovich at column 1, lines 20-32).

Moskovich does not describe or suggest a lens system that relays light output from a first imager on a pixel-by pixel basis onto a second imager including a pair of equivalent achromatic lenses and one pair of equivalent aspherical lenses positioned and configured to project the light output from a particular pixel on a first imager onto a corresponding pixel on a second imager. Rather, Moskovich only teaches telecentric lens system designed to combine

light generated in a light module for projection onto a viewing screen. Since Moskovich does not describe or suggest a lens system that relays light output from a first imager on a pixel-by pixel basis onto a second imager including a pair of equivalent achromatic lenses and one pair of equivalent aspherical lenses positioned and configured to project the light output from a particular pixel on a first imager onto a corresponding pixel on a second imager, claim 10 is patentable over Moskovich.

Furthermore, since Crossland et al. only teaches an arrangement in which images produced by an electrically addressed spatial light modulator are written on different parts of an optically addressed spatial light modulator using an image transfer means and Moskovich only teaches telecentric lens system designed to combine light generated in a light module for projection onto a viewing screen, the combination of these references does not describe or suggest applicants arrangement recited in claim 10. In particular, claim 10 recites a lens system that relays light output from a first imager on a pixel-by pixel basis onto a second imager including a pair of equivalent achromatic lenses and one pair of equivalent aspherical lenses positioned and configured to project the light output from a particular pixel on a first imager onto a corresponding pixel on a second imager. Thus, claim 10 is patentable over the combination of these references.

Claims 12-16 depend directly, or indirectly from claim 10. For the same reasons as indicated above for claim 10, claims 12-16 are also patentable over the combination of these references.

3. Claim 11 is not obvious over Crossland et al. in view of Moskovich in further view of Travis

Claim 11 stands rejected under 35 U. S. C. § 103(a) as being unpatentable over Crossland et al. (U. S. Patent 6,654,156 issued on November 25, 2003) in view of Moskovich (U. S. Patent 5,625,495 issued on April 29, 1997) in further view of Travis (U. S. Patent 7,101,048 issued on September 5, 2006).

The applicants submit that this claim is not rendered obvious by the combination of these references.

Claim 11 depends from claim 10 is directed to a lens system for use in a projection system (*see*, specification at page 1, lines 10-12). The lens system 80 relays light output from a first imager 50 on a pixel-by pixel basis onto a second imager 60 (*see*, FIG. 1 and the specification at page 3, lines 21-25). The lens system 80 includes one pair of equivalent achromatic lenses 81, 85 and one pair of equivalent aspherical lenses 82, 84 positioned and configured to project the light output from a particular pixel on a first imager 50 onto a corresponding pixel on a second imager 60 (*see*, FIG. 1 and the specification at page 3, lines 23-25).

Crossland et al. discloses an image display system (*see*, Crossland et al. at column 1, lines 5-7). The image display system includes an electrically addressed spatial light modulator (EASLM) 1 and an optically addressed spatial light modulator (OASLM) 5 (*see*, Crossland et al. at FIG. 1 and column 1, lines 43-53). Images produced by the EASLM 1 is written on different parts of the OASLM 5 (*see*, Crossland at column 2, lines 21-34). An image transfer means 3 steers the image to the desired part of the OASLM 5 (*see*, Crossland et al. at FIG. 1 and column 2, lines 34-43).

Crossland et al. does not describe or suggest a lens system that relays light output from a first imager on a pixel-by pixel basis onto a second imager including a including a pair of equivalent achromatic lenses and one pair of equivalent aspherical lenses positioned and configured to project the light output from a particular pixel on a first imager onto a corresponding pixel on a second imager with a distortion of less than about 0.015% with at least about 90% of the light energy of a specific pixel projected within a 15.4 micrometer square. Rather, Crossland et al. teaches away from applicants projection system with a completely different arrangement in which images produced by an electrically addressed spatial light modulator are written on different parts of an optically addressed spatial light modulator using an image transfer means. Since Crossland et al. does not describe or suggest a lens system that relays light

output from a first imager on a pixel-by pixel basis onto a second imager including a including a pair of equivalent achromatic lenses and one pair of equivalent aspherical lenses positioned and configured to project the light output from a particular pixel on a first imager onto a corresponding pixel on a second imager with a distortion of less than about 0.015% with at least about 90% of the light energy of a specific pixel projected within a 15.4 micrometer square, claim 11 is patentable over Crossland et al.

Moskovich describes a telecentric lens system (*see*, Moskovich at column 1, lines 7-9). The telecentric lens system 13 projects light from module 16 onto a mirror 18 which then reflects such light onto a screen 14 (*see*, Moskovich at FIG. 16 and column 8, lines 7-28). The telecentric lens system 13 is designed to combine light generated in module 16 for projection onto a viewing screen (*see*, Moskovich at column 1, lines 20-32).

Moskovich does not describe or suggest a lens system that relays light output from a first imager on a pixel-by pixel basis onto a second imager including a including a pair of equivalent achromatic lenses and one pair of equivalent aspherical lenses positioned and configured to project the light output from a particular pixel on a first imager onto a corresponding pixel on a second imager with a distortion of less than about 0.015% with at least about 90% of the light energy of a specific pixel projected within a 15.4 micrometer square. Rather, Moskovich only teaches telecentric lens system designed to combine light generated in a light module for projection onto a viewing screen. Since Moskovich does not describe or suggest a lens system that relays light output from a first imager on a pixel-by pixel basis onto a second imager including a including a pair of equivalent achromatic lenses and one pair of equivalent aspherical lenses positioned and configured to project the light output from a particular pixel on a first imager onto a corresponding pixel on a second imager with a distortion of less than about 0.015% with at least about 90% of the light energy of a specific pixel projected within a 15.4 micrometer square, claim 11 is patentable over Moskovich. .

Travis describes a compact projection display (*see*, Travis at column 1, lines 5-6). The projection display may include pixels with dimensions of 20-30 microns (*see*, Travis at column 7, lines 47-50).

Travis does not describe or suggest a lens system that relays light output from a first imager on a pixel-by pixel basis onto a second imager including a including a pair of equivalent achromatic lenses and one pair of equivalent aspherical lenses positioned and configured to project the light output from a particular pixel on a first imager onto a corresponding pixel on a second imager with a distortion of less than about 0.015% with at least about 90% of the light energy of a specific pixel projected within a 15.4 micrometer square. Rather, Travis only teaches projection display including pixels with dimensions of 20-30 microns. Further, the pixel size of Travis does not teach that light is **projected within a 15.4 micrometer square**, as claim 11 requires. Since Travis does not describe or suggest a lens system that relays light output from a first imager on a pixel-by pixel basis onto a second imager including a including a pair of equivalent achromatic lenses and one pair of equivalent aspherical lenses positioned and configured to project the light output from a particular pixel on a first imager onto a corresponding pixel on a second imager with a distortion of less than about 0.015% with at least about 90% of the light energy of a specific pixel projected within a 15.4 micrometer square, claim 11 is patentable over Travis.

Furthermore, since Crossland et al. only teaches an arrangement in which images produced by an electrically addressed spatial light modulator are written on different parts of an optically addressed spatial light modulator using an image transfer means, Moskovich only teaches telecentric lens system designed to combine light generated in a light module for projection onto a viewing screen and Travis only teaches projection display including pixels with dimensions of 20-30 microns, the combination of these references does not describe or suggest applicants arrangement recited in claim 11. In particular, claim 11 recites a lens system that relays light output from a first imager on a pixel-by pixel basis onto a

second imager including a including a pair of equivalent achromatic lenses and one pair of equivalent aspherical lenses positioned and configured to project the light output from a particular pixel on a first imager onto a corresponding pixel on a second imager with a distortion of less than about 0.015% with at least about 90% of the light energy of a specific pixel projected within a 15.4 micrometer square. Thus, claim 11 is patentable over the combination of these references.

CONCLUSION

The applicants submit that none of the claims now pending in the application are obvious under the provisions of 35 U. S. C. § 103. Thus, the applicants believe that all of these claims are in allowable form and this application is presently in condition for allowance. Accordingly, both reconsideration of this application and its swift passage to issue are earnestly solicited.

If, however, the Examiner believes that there are any unresolved issues requiring adverse final action in any of the claims now pending in the application, it is requested that the Examiner telephone Ms. Patricia A. Verlangieri, at (609) 734-6867, so that appropriate arrangements can be made for resolving such issues as expeditiously as possible.

Respectfully submitted,

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